

Altair

Subject: 9th BIOLOGY

Class: Coordination and Response

Date: July 1

2011



Teacher's notes

Objectives

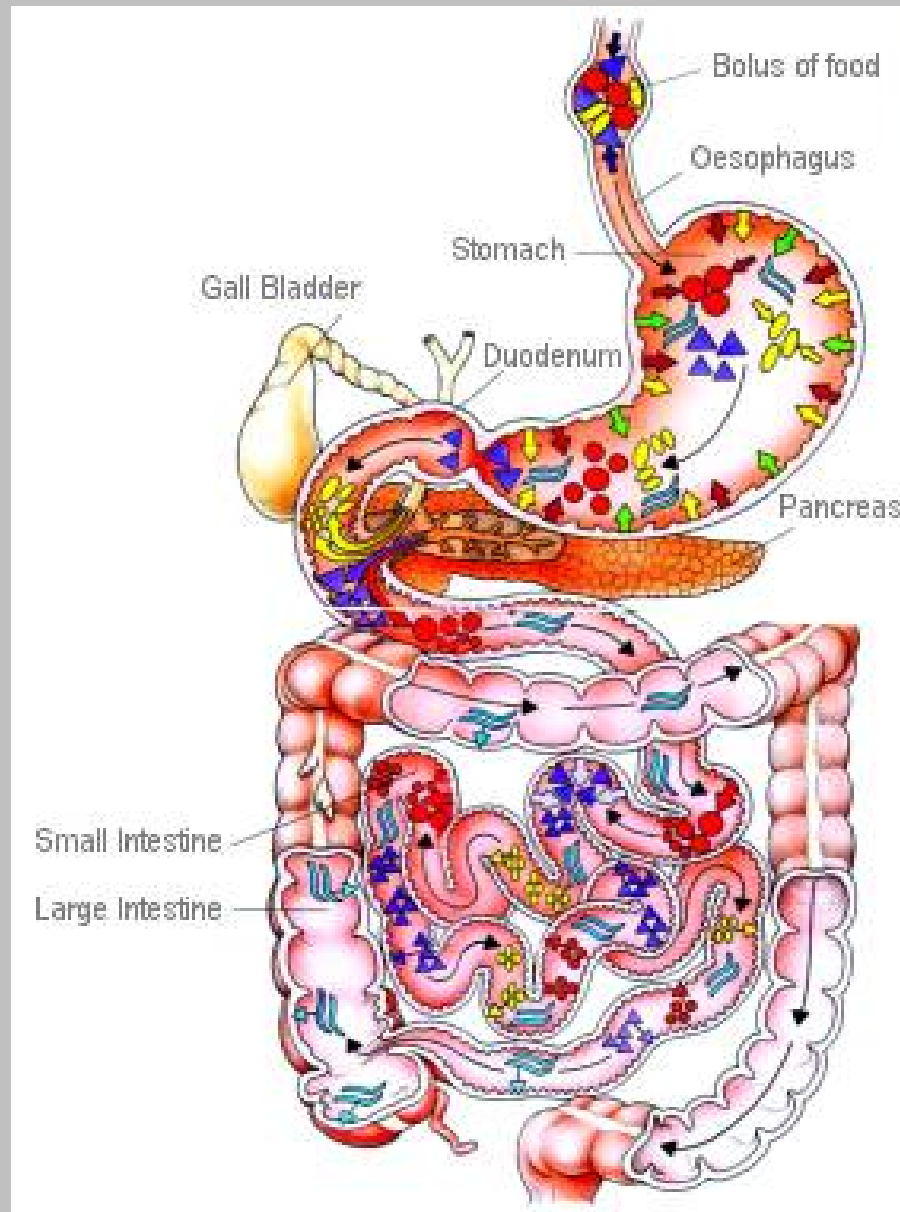
Vocabulary

Link and Learn

Prepared by

**Let's remember previous
learned concepts...**

How does your body coordinate functions?



FOOD AND DIGESTION

Animation
Flush the unhealthy food
<http://goo.gl/2zr2Y>

Why do you Eat?

- Your body is full of chemical compounds. These chemicals are obtained through the food you eat.
- There are 3 main reasons for eating:

For Energy

- Most functions of your organism require energy.
- Your food is the fuel that provides that necessary energy.

For Growth and Repair

- When you grow, your body needs new cells.
- Your body also needs to replace old or damaged cells.

To stay healthy

- All the chemical reactions in your body require chemicals, coming from foods or digested foods.

NUTRITION

- *Nutrition*, is the process by which organisms take in and utilize food material.
- In terms of nutritional activities, two are the categories to consider: Autotrophs and Heterotrophs.



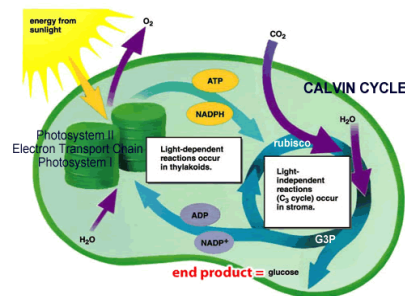
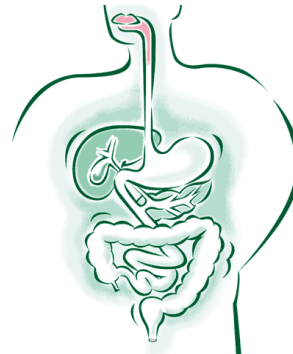
AUTOTROPHS

Photosynthesis is a group of chemical reactions that use light to produce sugar and oxygen.

Organisms that are unable to produce their own food, and have to feed on other organisms.

Organisms that produce their own food through the process of photosynthesis.

Process by which food is broken down by chemical and physical processes into suitable substances to be absorbed and assimilated into the body.



HETEROTROPHS

Types of Heterotrophs

SAPROPHYTES feed on dead or decaying material using *extracellular digestion*, secreting digestive enzymes onto the food. Fungi and bacteria (decomposers) are members of this group.

PARASITES feed on other living organisms, their **hosts**. The relationship between the parasite and the host is beneficial to the parasite but harmful to the host.

HOLOZOIC FEEDERS include virtually all animals. They take their food into their bodies and digest it, with a specialized digestive system. These include *herbivores, carnivores, detritivores*.

MUTUALISM is a form of nutrition where there is close association between two species where both partners benefit.

ANIMATION

**How does your body
digest different foods?**

<http://goo.gl/412ND>

ANIMATION
Organs of Digestion
<http://goo.gl/qDSNF>

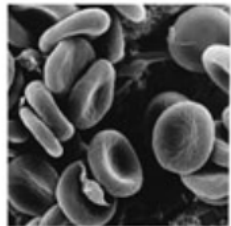
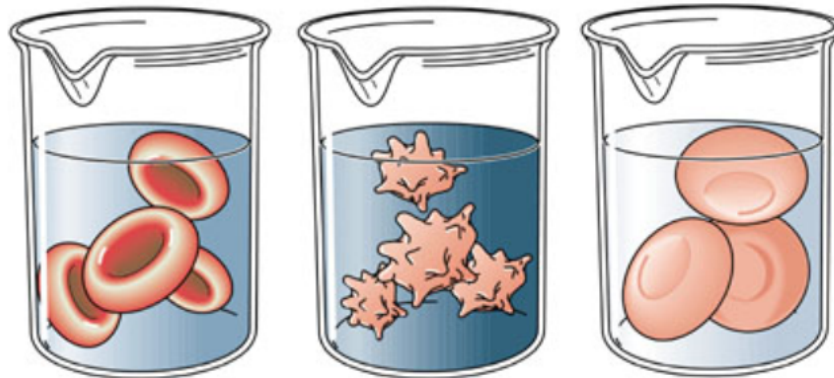
ANIMATION

Digestion

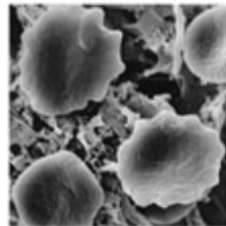
<http://goo.gl/WS768>

HOMEOSTASIS

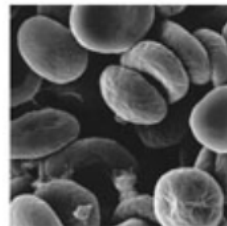
- All living things respond to their environments in order to maintain the constancy and order, the HOMEOSTASIS.
- It is the maintenance of stable internal conditions in a changing environment.
- *One way that a cell controls homeostasis is by controlling the movement of substances across the cell membrane and through the body.*



A.
Isotonic solution
(equal concentration
of ions in solution
and cell)



B.
Hypertonic solution
(higher concentration
of ions in solution
than in cell)



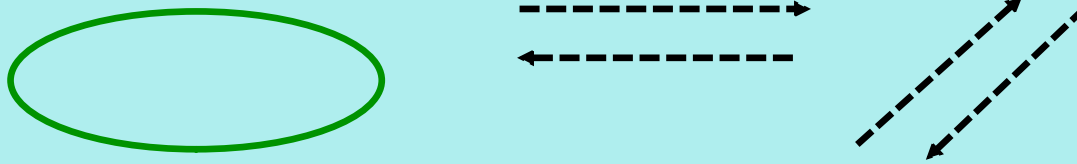
C.
Hypotonic solution
(lower concentration
of ions in solution
than in cell)

ANIMATION
How osmosis works
<http://goo.gl/FWBPh>



Nervous System

In your notebook, make a web diagram connecting all your knowledge about the Nervous System. (10 minutes)



Nervous System

The nervous system controls and coordinates our action by:

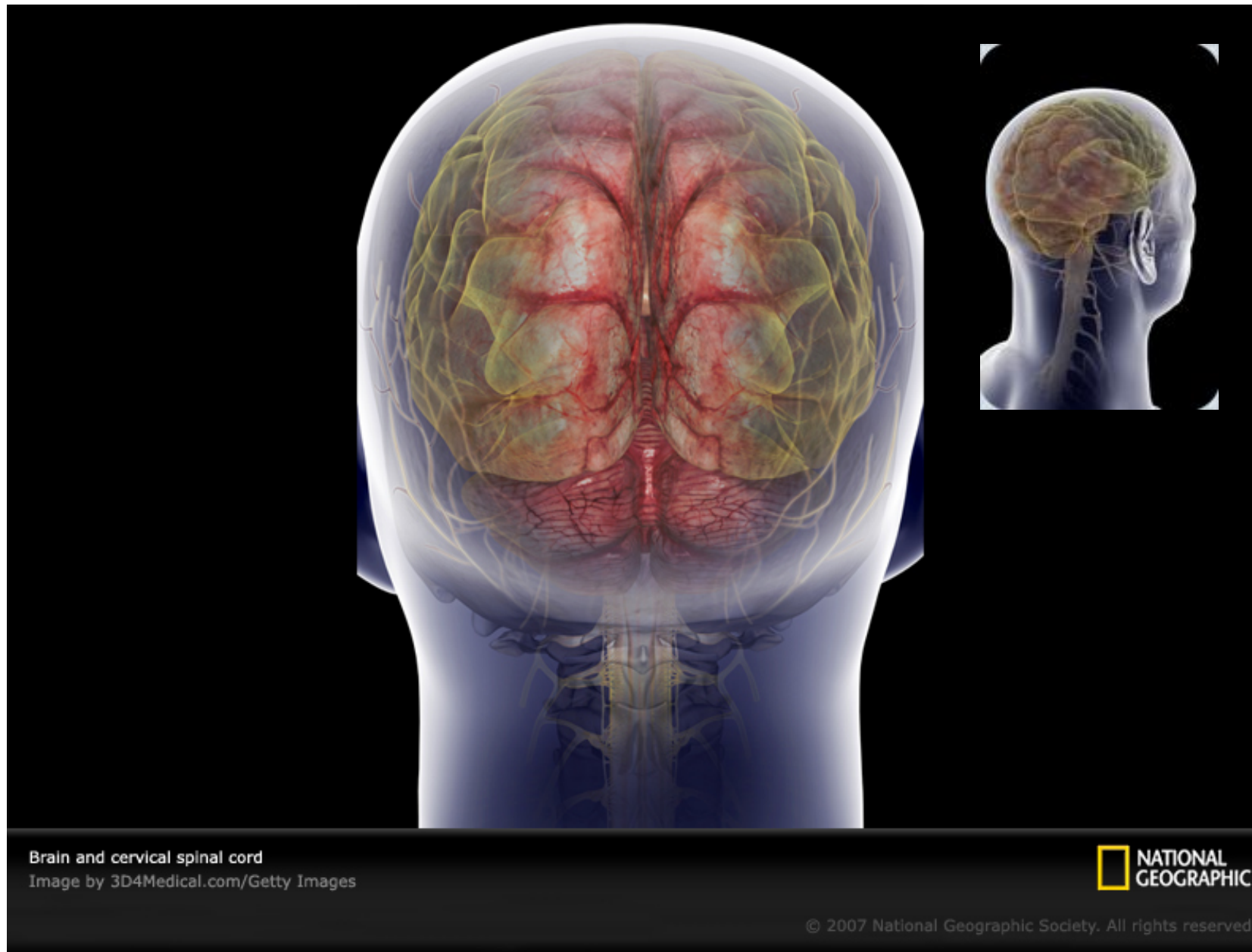
- detecting changes (*stimuli*) inside and outside our body,
- processing information (*stimuli*) and taking decisions from it,
- initiating responses to these stimuli by coordinating the body's actions.

The Nervous System has two main components:

- *Central Nervous System (CNS)*: it processes sensory information, deciding what to do and initiating a response.

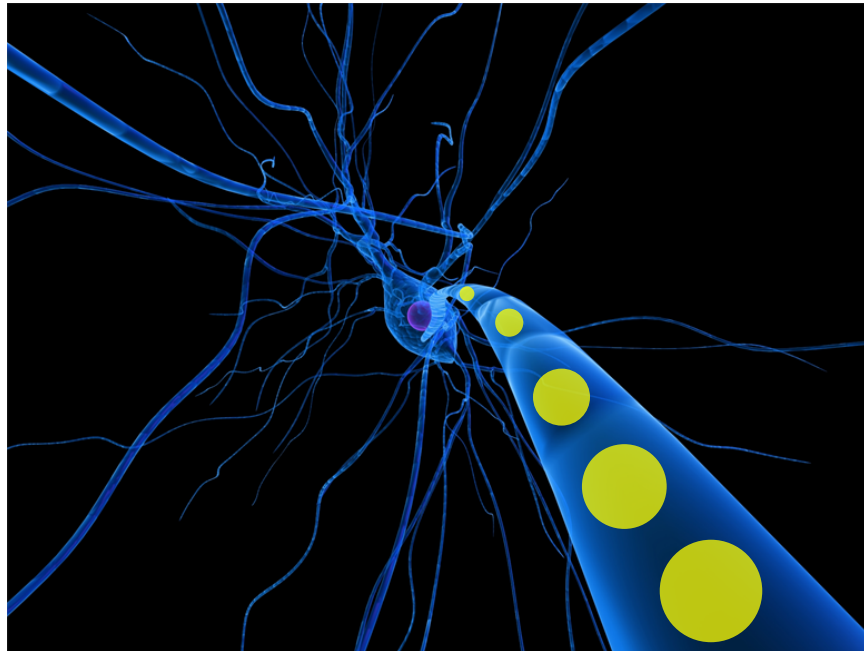
It is formed by the *brain* and *spinal cord*.

- *Peripheral Nervous System (PNS)*: the information is carried to the CNS by packs of nerves joined to the brain and spinal cord and taking information away. These nerves form the PNS.



Neurons

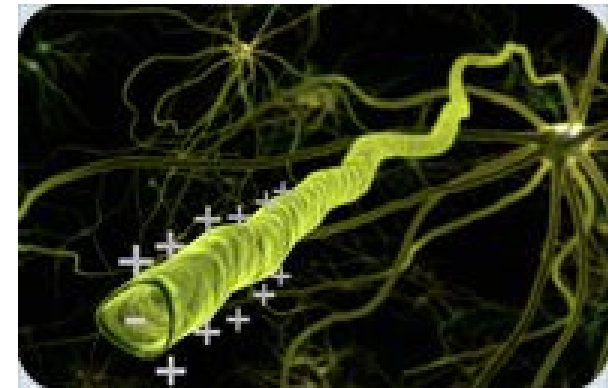
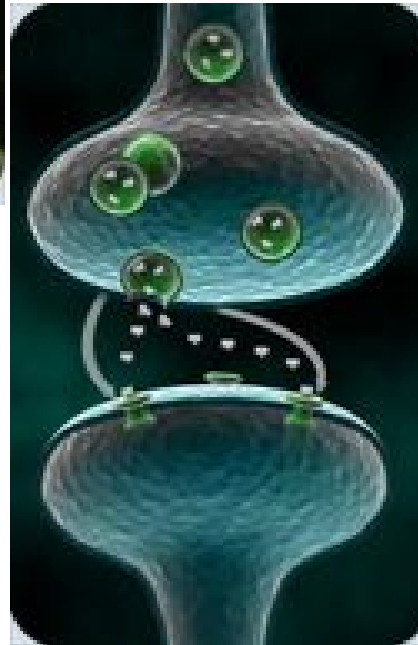
- Are the basic functional units of the Nervous System.
- Neurons are highly specialized cells that are able to generate and transmit nerve impulses.
- Neurons transmit nerve impulses as a series of electrical signals.





**Neurons use chemical substances
and electrical signals.**

**Neurons form connections
between them and with
other types of cells.**



ANIMATION
Brain Tutorial
<http://bit.ly/9uyb71>

ANIMATION

Spine

<http://bit.ly/cl6zt0>

ANIMATION

Organs and Nerves

<http://bit.ly/9OUw2q>

Nerve Impulse and Synapsis

ANIMATION

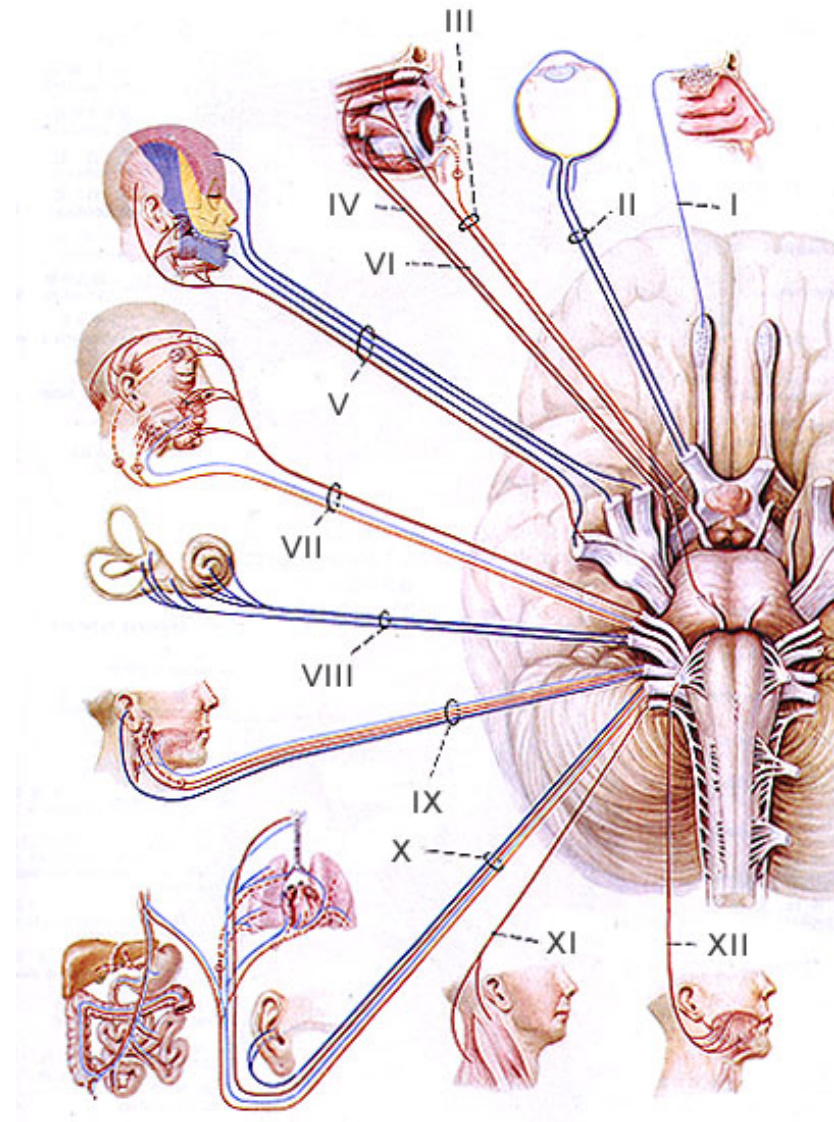
The Nerve Impulse

<http://goo.gl/FtW12>

Cranial Nerves

- ***A nerve* is a bundle of axons providing the pathway for the transmission of nerve impulses.**
- **The cranial nerves are designated both by name and by Roman numerals, according to the order in which they appear on the inferior surface of the brain.**
- **Most of the nerves have both sensory and motor components.**
- **Three of the nerves are associated with the special senses of smell, vision, hearing, and equilibrium and have only sensory fibers.**
- **Five other nerves are primarily motor in function but do have some sensory fibers for proprioception.**
- **The remaining four nerves consist of significant amounts of both sensory and motor fibers.**

- I: Olfactory**
- II: Optic**
- III: Oculomotor**
- IV: Trochlear**
- V: Trigeminal**
- VI: Abducens**
- VII: Facial**
- VIII: Auditory**
- IX: Glossopharyngeal**
- X: Vagus**
- XI: Accesory**
- XII: Hypoglossal**



ANIMATION

The 12 Cranial Nerves

<http://goo.gl/Mczpi>

Eye Animations

[**http://goo.gl/ezNyO**](http://goo.gl/ezNyO)

[**http://goo.gl/eYGDj**](http://goo.gl/eYGDj)

Teacher's Notes

This class has been designed to cover the topics of *Coordination and Response I* from Monday, July 4th till Friday, July 8th.

For further knowledge about this topic:

1. Conduct a thorough search under the topic: *Coordination and Response I* on the Web, books and magazines.
2. If findings are not specific, ask your teacher for suggestions.

BACK

Objectives

General

- Identify and describe the anatomical characteristics and functions of the Digestive system.
- Identify and describe the anatomical characteristics and functions of the Nervous system.

***Note:** All, or most, of the objectives will be covered during class time, however the student must be responsible for those objectives not covered or concluded.*

BACK

Vocabulary

- Brain
- Nerve
- Axon
- Dendrite

Note: *Most of the vocabulary words will be covered during class time, however the student must be responsible for those words not covered or concluded.*

BACK

Link and Learn

You can visit the following websites to improve your understanding on the present topic:

- <http://science-altair.wikispaces.com>
- <http://learningandscience.blogspot.com>

BACK

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BACK